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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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IBM CORPORATION ROCHESTER IP LAW DEPT. 917 3605 HIGHWAY 52 NORTH ROCHESTER, MN 55901-7829			EBIRIM, EMEKA	
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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,296	<b>Applicant(s)</b> DAY ET AL.	
	<b>Examiner</b> Emeka Ebirim	<b>Art Unit</b> 2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Status***

1. The application has been examined. Claim 30 has been cancelled. Claims 1-29 are rejected as detailed below and are pending in this office action.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application with useful, concrete and tangible result.

4. Claim 29 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 29 is not limited to tangible embodiments. In view of Applicants disclosure, specification page [10 lines 15-21], the medium is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g. CD ROMs, [page 10, line19-20]) and intangible embodiments (e.g. communication links, [lines 20-21]). This claim is defined to include a signal medium which is a non-statutory subject matter

as such; the claim is not limited to statutory subject matter and is therefore non-statutory.

Claim 29 also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 3-11, 16-24, 29 rejected under 35 U.S.C. 102(e) as being anticipated by Turkel.

**Claim 3.**

Turkel discloses

A method of optimizing a database query, the method comprising [Para 0009]:  
determining a retrieval status for a resource used by the database query [Para 0087, 0092, 0093, Fig 2]; and

generating an access plan for the database query using the determined retrieval status for the resource [Para 0092, 0127, Fig 5].

Claim 4.

Turkel discloses the elements of claim 3 as above and further it discloses wherein the resource is selected from the group consisting of a database file, a database table, an index, a temporary result set, a temporary file, a hash table, and combinations thereof [indices, tables, Para 121, 0146, Fig 4-5].

Claim 5.

Turkel discloses the elements of claim 3 as above and further it discloses wherein determining the retrieval status includes determining whether at least a portion of the resource is resident in working memory [Turkel Para 0092, 0093, 0094, Fig 2, Fig 5].

Claim 6.

Turkel discloses the elements of claim 3 as above and further it discloses wherein determining the retrieval status includes determining whether at least a portion of the resource is resident in a cache memory [cache (memory), Turkel Para 0092, 0093, 0094, Fig 2, Fig 5].

Claim 7.

Turkel discloses the elements of claim 3 as above and further it discloses wherein determining the retrieval status includes determining whether at least a portion of the resource is resident in a local or a remote memory [cache (memory), Turkel Para 0092, 0093, 0094, Fig 2, Fig 5].

Claim 8.

Turkel discloses the elements of claim 3 as above and further it discloses determining the retrieval status includes determining a percentage of the resource that is resident in working memory [cache (memory), Turkel Para 0092, 0093, 0094, Fig 2, Fig 5].

Claim 9.

Turkel discloses the elements of claim 3 as above and further it discloses wherein determining the retrieval status includes accessing a resource manager to obtain the retrieval status of the resource [Controller (resource manager), Para 0093, 0087].

Claim 10.

Turkel discloses the elements of claim 9 as above and further it discloses, further comprising tracking, with the resource manager, a percentage of the resource that is in working memory [Para 0087, 0092, 0093].

Claim 11.

Turkel discloses the elements of claim 10 as above and further it discloses, further comprising storing the percentage of the resource that is in working memory in a header for a persistent copy of the resource (determines which data segments are held in caches) [Para 0087, 0092, 0093].

Claim 16.

Turkel discloses:

at least one processor [Para 0010, 0015];

a memory that includes a working memory [memory, cache, Para 0092, 0016 Fig 2]; and

program code resident in the memory and configured to be executed by the at least one processor to optimize a database query by determining a retrieval status for a resource used by the database query, and generating an access plan for the database query using the determined retrieval status for the resource (determines the availability of data required (retrieval status)) [execution plan, See Turkel Para 0092, 0093, 0094, 0127, Fig 2, Fig 5].

Claim 17.

Claim 17 is essentially the same as claim 4 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 18.

Claim 18 is essentially the same as claim 5 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 19

Claim 19 is essentially the same as claim 6 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 20.

Claim 20 is essentially the same as claim 7 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 21.

Claim 21 is essentially the same as claim 8 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 22.

Claim 22 is essentially the same as claim 9 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 23.



Claim 23 is essentially the same as claim 10 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 24.

Claim 24 is essentially the same as claim 11 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 29.

Turkel discloses:

program code configured to optimize a database query by determining a retrieval status for a resource used by the database query, and generating an access plan for the database query using the determined retrieval status for the resource; and a computer readable signal bearing medium bearing the program code (determines the availability of data required (retrieval status)) [execution plan, See Turkel Para 0092, 0093, 0094, 0127, Fig 2, Fig 5].

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-2, 12-15, 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent No.: 6,266,658 to Adya et al (hereinafter Adya) in view of Pub No US 2004/0073549 A1 to Turkel et al (hereinafter Turkel).

Claim 1.

Adya discloses:

A method of performing a database query, the method comprising [queries to a database, Col 1 line 22-24]:

generating an access plan for the database query, the access plan using at least one resource capable of being retrieved into working memory, wherein the resource is selected from the group consisting of a database file, a database table, an index, a temporary result set, a temporary file, and a hash table [execution plan generated (access plan), database, index, results, Col 3 line 40, Col 7 lines 1-7];

estimating a cost for the access plan using the estimated percentage [cost estimated cost of current configuration, Col 8 lines 29-30]; and

selectively executing the access plan based upon the estimated cost [plan of execution, Col 7 lines 1-5, 28-31, 35-37].

Adya discloses the elements of claim 1 as above but it does not explicitly indicate “estimating a percentage of the resource that is currently resident in working memory”. Turkel discloses the claimed element as determining whether all the data required for resolving the request is available in the cache [Turkel Para 0092, 0093, 0094, Fig 2, Fig 5].

It would have been obvious to one of ordinary skill in the art to have combined the cited references because estimating a percentage of the resource that is currently resident in working memory as disclosed by Turkel would have served Adya to order and plan the manner in which the query is checked and thus reduce the access time to the memory or disk storing the database [Turkel Para 0006].

Furthermore, Turkel disclose would enable Adya to enhance the number of requests which are handled by the server [Turkel Para 0007].

## Claim 2.

The combination of Adya and Turkel discloses the elements to claim 1 as above and furthermore Adya disclose generating a second access plan for the database query and estimating a cost for the second access plan, wherein selectively executing the first access plan includes comparing the estimated costs for the first and second access

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plan and executing the first access plan if the estimated cost therefor is less than that of the second access plan [plan of execution, based on cost of plan, See Adya Col 7 lines 1-5, 12-14].

Claim 12.

Turkel discloses the elements of claim 3 as above and further it discloses generating the access plan includes [execution plan generated, groups of queries,

Para 0092, 0127, 0115, Fig 5]:

generating a plurality of alternate access plans [execution plan generated, groups of queries, Para 0092, 0127, 0115, Fig 5];

Turkel discloses the elements of claim 3 as above, but it does not explicitly indicate "calculating a cost for each alternate access plan using the determined retrieval status for the resource; and selecting one of the alternate access plans based upon the calculated costs for each alternate access plan".

Adya discloses the claimed elements "calculating a cost for each alternate access plan using the determined retrieval status for the resource [See Adya, Col 6 lines 64-67-Col 7 lines 1-5, Col 7 lines 28-30, 34-37, 12-15]; and selecting one of the alternate access plans based upon the calculated costs for each alternate access plan" [See Adya, Col 6 lines 64-67-Col 7 lines 1-5, Col 7 lines 28-30, 34-37 12-15].

It would have been obvious to one of ordinary skill in the art to have combined the cited references because plan selection based on cost as disclosed by Adya would

have enabled Turkel to more quickly determine a set of beneficial indexes given a workload [Adya Col 3 lines 15-20].

Furthermore it would enable Turkel's system to avoid repeating calls to the optimizer to determine a set of beneficial indexes [Adya Col 3 lines 15-20].

Claim 13.

The combination of Turkel and Adya discloses the elements of claim 12 as above and further Adya discloses the retrieval status for the resource indicates a percentage of the resource that is resident in working memory, and wherein calculating the cost for each alternate access plan includes [See Adya, Col 7 lines 1-5,12-15, Fig 2, Col 8 line 27-30]:

calculating the cost as a function of input/output cost and processing cost [See Adya, workload cost, Col 7 lines 27-29]; and

calculating the input/output cost by scaling an estimated input/output cost by a scalar value associated with the percentage of the resource that is resident in working memory [See Adya, Col 7 lines 27-29, Col 8 lines 27-31].

Claim 14.

The combination of Turkel and Adya discloses the elements of claim 12 as above and further Adya discloses storing the access plan, including associating with the stored access plan a retrieval status assumption for the stored access plan, the retrieval status

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assumption representing the determined retrieval status used to generate the access plan [store, execution plan Col 5 lines 39-40, Col 3 lines 39-41]; and

in response to a request to execute the stored access plan [execution plan, Col 3 lines 39-41]:

determining a current retrieval status for the resource [Col 8 lines 27-31];

comparing the current retrieval status with the retrieval status

assumption [Col 7 lines 12-20]; and

selectively generating another access plan for the database query using the current retrieval status based upon the comparison of the current retrieval status with the retrieval status assumption [Col 7 lines 1-5, 12-20].

#### Claim 15.

Turkel discloses the elements to claim 3 as above but it does not explicitly indicate “cost for the access plan”. Adya discloses the claimed recitation [See Adya, Col 6 lines 64-67-Col 7 lines 1-5, Col 7 lines 28-30, 34-37 12-15].

It would have been obvious to one of ordinary skill in the art to have combined the cited references because plan selection based on cost as disclosed by Adya would have enabled Turkel to more quickly determine a set of beneficial indexes given a workload [Adya Col 3 lines 15-20].

Furthermore it would enable Turkel’s system to avoid repeating calls to the optimizer to determine a set of beneficial indexes [Adya Col 3 lines 15-20].

Claim 25.

Claim 25 is essentially the same as claim 12 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 26.

Claim 26 is essentially the same as claim 13 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 27.

Claim 27 is essentially the same as claim 14 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

Claim 28.

Claim 28 is essentially the same as claim 15 except that it recites "apparatus". It is rejected for the same reason (hereinabove).

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the accompanying PTO-892 form.

***Contact Information***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emeka Ebirim whose telephone number is 571-272-3994. The examiner can normally be reached on 8:30pm - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Name: Emeka Ebirim  
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**HOSAIN ALAM**  
**SENIOR PATENT EXAMINER**